

**CLAIMS**

1. A method of treatment or prevention of damage due to radiation exposure comprising administering to a subject in need of such treatment an effective amount of a composition comprising 1) a compound including a radiation damage-inhibiting polypeptide comprising amino acid sequence LKKTET, a conservative variant of LKKTET, an actin-sequestering agent, an anti-inflammatory agent; 2) an agent which stimulates production of said compound in said subject; 3) an agent which regulates said compound in said subject; or 4) an antagonist of said compound, so as to inhibit radiation damage in said subject.

2. The method of claim 1 wherein said compound comprises a polypeptide comprising amino acid sequence LKKTET, or a conservative variant thereof.

3. The method of claim 1 wherein said polypeptide comprises amino acid sequence KLKKTET or LKKTETQ, Thymosin  $\beta$ 4 (T $\beta$ 4), an N-terminal variant of T $\beta$ 4, a C-terminal variant of T $\beta$ 4, an isoform of T $\beta$ 4, a splice-variant of T $\beta$ 4, oxidized T $\beta$ 4, T $\beta$ 4 sulfoxide, lymphoid T $\beta$ 4 or pegylated T $\beta$ 4.

4. The method of claim 1 wherein said compound is thymosin beta 4 (T $\beta$ 4).

5. The method of claim 1 wherein said compound is present in a gel, cream, paste, lotion, spray, salve, suspension, dispersion, hydrogel or ointment.

6. The method of claim 1 wherein said compound is delivered systemically to said subject by injection, infusion, pulmonary delivery, or orally, rectally, nasally, transdermally, or a combination thereof.

7. The method of claim 1 wherein said agent is an antibody.

8. The method of claim 1 wherein said antagonist is an anti-sense form of said compound.

9. The method of claim 1 comprising administering said compound to said subject so as to protect radiosensitive stem cells in said subject.

10. The method of claim 1 wherein said stem cells are in blood, bone marrow or gastrointestinal tract tissue of said subject.

11. The method of claim 1 wherein said composition is administered systemically.

12. The method of claim 1 wherein said composition is administered topically.

13. The method of claim 1 wherein said composition is administered enterally.

14. The method of claim 1 wherein said radiation is ionizing radiation.

15. The method of claim 1 further including a step of administering radiation to a target area of said subject so as to treat cancer or a tissue abnormality in said target area, wherein said composition is administered to said subject before, during or after administration of said radiation to said target area, or a combination thereof, so as to inhibit radiation damage in said subject outside said target area.

16. The method of claim 15 wherein said composition prevents induced apoptosis of cells of said subject outside said target area.

17. The method of claim 3 wherein said composition is contained in a formulation at a concentration within a range of about 0.001-10% by weight for administration to said subject.

18. A substance for use in manufacturing a medicament for treatment or prevention of damage due to ionizing radiation exposure, comprising 1) a compound including a radiation damage-inhibiting amino acid sequence LKKTET, a conservative variant of LKKTET, an actin-sequestering agent, an anti-inflammatory agent; 2) an agent which stimulates production of said compound in said subject; 3) an agent which regulates said compound in said subject; or 4) an antagonist of said compound, so as to inhibit radiation damage in said subject.